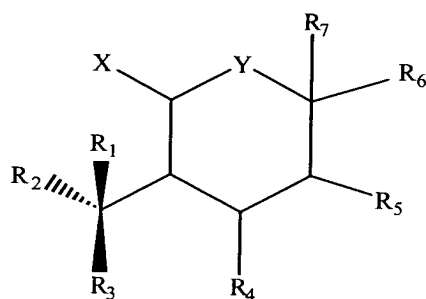


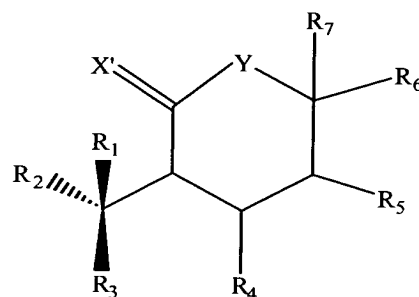
WHAT IS CLAIMED IS:

1. A method of inhibiting 11 β -hydroxysteroid dehydrogenase in a living system comprising:

- administering to the living system an effective amount of an
5 inhibitor of cortisol-to-cortisone conversion, as mediated by 11 β -hydroxysteroid dehydrogenase, of formula I or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11 β -hydroxysteroid dehydrogenase, of formula II or derivatives thereof as follows:



I



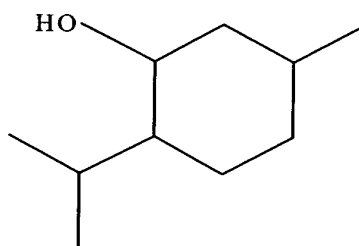
II

wherein R₁ is H or CH₃, R₂ is H, CH₃, or CH₂CH₃, R₃ is H, CH₃, CH₂CH₃, or CH₂CH₂CH₃, R₄ is H, CH₃, or CH₂CH₃, R₅ is H, CH₃, or CH₂CH₃, R₆ is H, CH₃, CH₂CH₃, or CH₂CH₂CH₃, R₇ is H or CH₃, X is OH, SH, or NH₂, X' is O, S, or NH, and Y is O, S, NH, or CH₂.

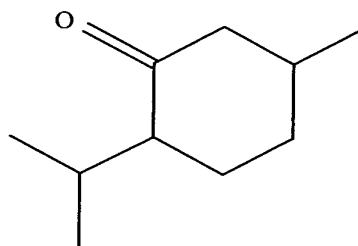
2. The method according to claim 1, wherein the 11 β -hydroxysteroid dehydrogenase is isoform I.

3. The method according to claim 1, wherein the 11 β -hydroxysteroid dehydrogenase is isoform II.

4. The method according to claim 1, wherein the inhibitor has the formula:



5. The method according to claim 1, wherein the inhibitor has the formula:



5

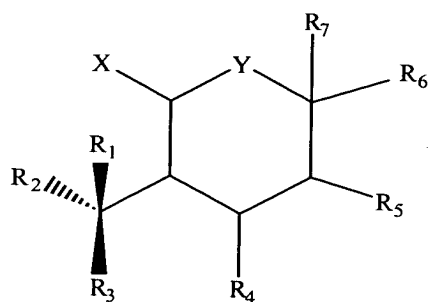
6. The method according to claim 1, wherein the administering is carried out topically.

- 10 7. The method according to claim 1, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

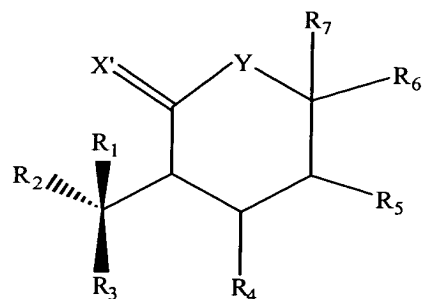
8. A method of treating an inflammatory or allergic condition in a living system comprising:

- 15 administering to the living system an inhibitor of cortisol-to-cortisone conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula I or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula II or derivatives thereof as follows:

20



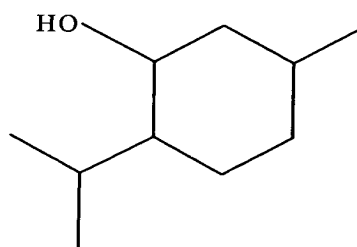
I



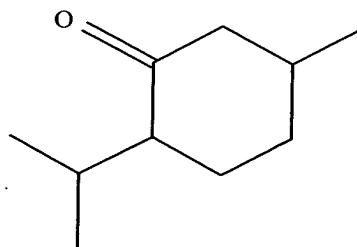
II

wherein R_1 is H or CH_3 , R_2 is H, CH_3 , or CH_2CH_3 , R_3 is H, CH_3 , CH_2CH_3 , or $CH_2CH_2CH_3$, R_4 is H, CH_3 , or CH_2CH_3 , R_5 is H, CH_3 , or CH_2CH_3 , R_6 is H, CH_3 , CH_2CH_3 , or $CH_2CH_2CH_3$, R_7 is H or CH_3 , X is OH, SH, or NH_2 , X' is O, S, or NH, and Y is O, S, NH, or CH_2 , under conditions effective to treat an inflammatory or allergic condition.

9. The method according to claim 8, wherein the 11β -hydroxysteroid dehydrogenase is isoform I.
10. The method according to claim 8, wherein the 11β -hydroxysteroid dehydrogenase is isoform II.
11. The method according to claim 8, wherein the inhibitor has the formula:



12. The method according to claim 8, wherein the inhibitor has the formula:

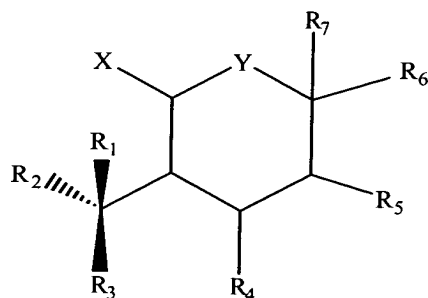


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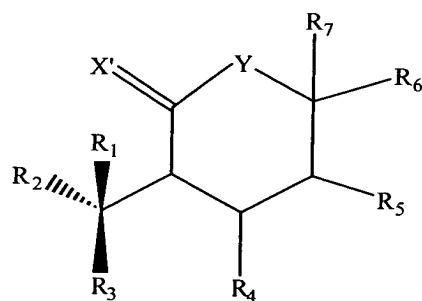
13. The method according to claim 8, wherein the administering is carried out topically.

14. The method according to claim 8, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

15. A method of treating cancer in a living system comprising: administering to the living system an inhibitor of cortisol-to-cortisone conversion, as mediated by 11 β -hydroxysteroid dehydrogenase, of formula I or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11 β -hydroxysteroid dehydrogenase, of formula II or derivatives thereof as follows:



I



II

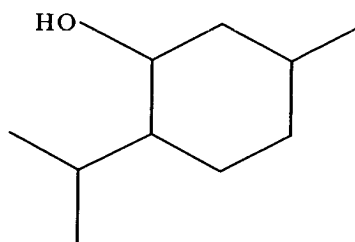
wherein R_1 is H or CH_3 , R_2 is H, CH_3 , or CH_2CH_3 , R_3 is H, CH_3 , CH_2CH_3 , or $CH_2CH_2CH_3$, R_4 is H, CH_3 , or CH_2CH_3 , R_5 is H, CH_3 , or CH_2CH_3 , R_6 is H, CH_3 , CH_2CH_3 , or $CH_2CH_2CH_3$, R_7 is H or CH_3 , X is OH, SH, or NH_2 , X' is O, S, or NH, and Y is O, S, NH, or CH_2 , under conditions effective to treat cancer.

5

16. The method according to claim 15, wherein the 11β -hydroxysteroid dehydrogenase is isoform I.

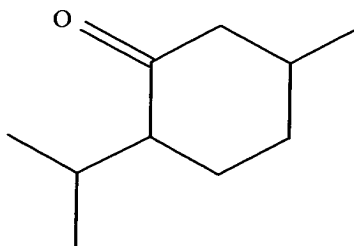
17. The method according to claim 15, wherein the 11β -
10 hydroxysteroid dehydrogenase is isoform II.

18. The method according to claim 15, wherein the inhibitor has the formula:



15

19. The method according to claim 15, wherein the inhibitor has the formula:



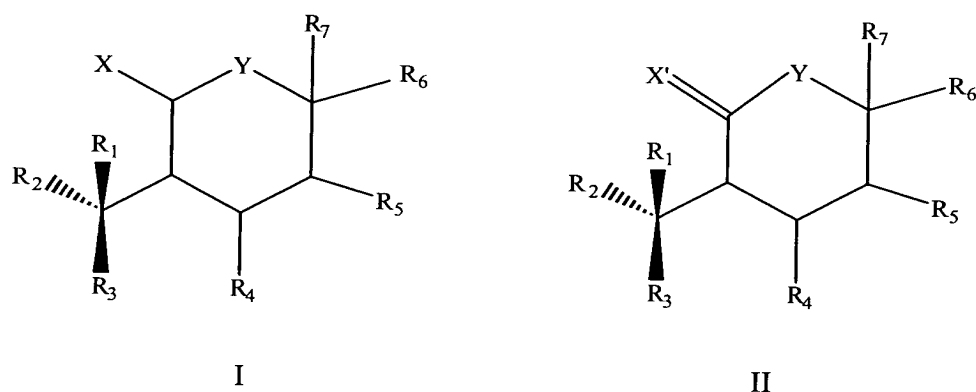
20

20. The method according to claim 15, wherein the administering is carried out topically.

21. The method according to claim 15, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

22. A method of treating obesity, diabetes mellitus, or a metabolic syndrome involving 11 β -hydroxysteroid dehydrogenase in a living system comprising:

administering to the living system an inhibitor of cortisol-to-cortisone conversion, as mediated by 11 β -hydroxysteroid dehydrogenase, of formula I or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11 β -hydroxysteroid dehydrogenase, of formula II or derivatives thereof as follows:

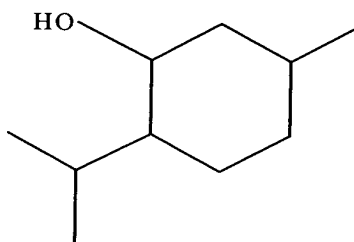


wherein R₁ is H or CH₃, R₂ is H, CH₃, or CH₂CH₃, R₃ is H, CH₃, CH₂CH₃, or CH₂CH₂CH₃, R₄ is H, CH₃, or CH₂CH₃, R₅ is H, CH₃, or CH₂CH₃, R₆ is H, CH₃, CH₂CH₃, or CH₂CH₂CH₃, R₇ is H or CH₃, X is OH, SH, or NH₂, X' is O, S, or NH, and Y is O, S, NH, or CH₂, under conditions effective to treat obesity, diabetes mellitus, or a metabolic syndrome involving 11 β -hydroxysteroid dehydrogenase.

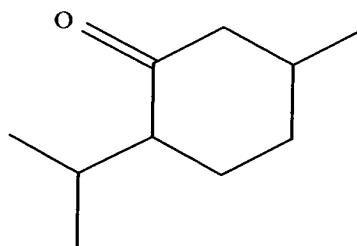
23. The method according to claim 22, wherein the 11 β -hydroxysteroid dehydrogenase is isoform I.

24. The method according to claim 22, wherein the 11 β -hydroxysteroid dehydrogenase is isoform II.

5 25. The method according to claim 22, wherein the inhibitor has the formula:



10 26. The method according to claim 22, wherein the inhibitor has the formula:

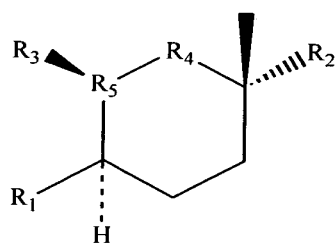


15 27. The method according to claim 22, wherein the administering is carried out topically.

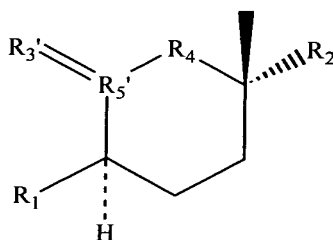
28. The method according to claim 22, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

20 29. A method of inhibiting 11 β -hydroxysteroid dehydrogenase in a living system comprising:

administering to the living system an effective amount of an inhibitor of cortisol-to-cortisone conversion, as mediated by 11 β -hydroxysteroid dehydrogenase, of formula III or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11 β -hydroxysteroid dehydrogenase, of formula IV or derivatives thereof as follows:



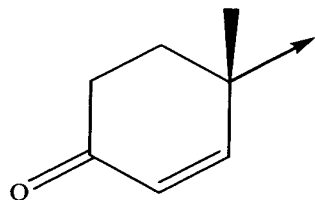
III



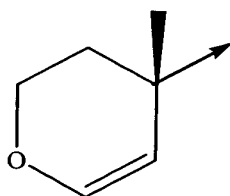
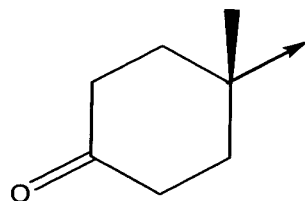
IV

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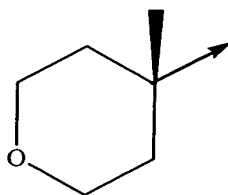
wherein R₁ is



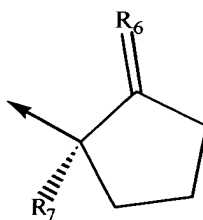
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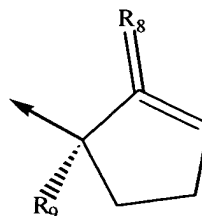
or



5 R_2 is



wherein R_6 is O or S and R_7 is H, OH, or halogen, or



10

wherein R_8 is H, OH, or halogen, and R_9 is H, OH, or halogen, and R_3 is OH, SH, or NH_2 , R_3' is O, S, or NH, R_4 is O, S, NH, or CH_2 , R_5 is N or CH_2 , and R_5' is SO or CH_2 .

15

30. The method according to claim 29, wherein the 11β -hydroxysteroid dehydrogenase is isoform I.

31. The method according to claim 29, wherein the 11β -hydroxysteroid dehydrogenase is isoform II.

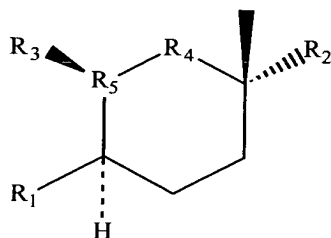
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32. The method according to claim 29, wherein the administering is carried out topically and/or systemically.

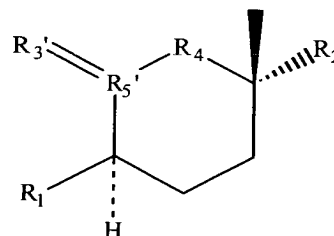
33. The method according to claim 29, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

34. A method of treating an inflammatory or allergic condition in a living system comprising:

administering to the living system an inhibitor of cortisol-to-cortisone conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula III or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula IV or derivatives thereof as follows:

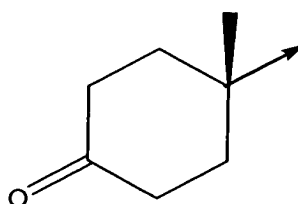
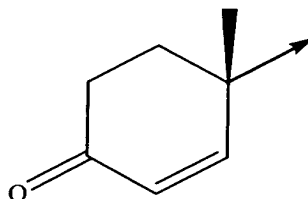


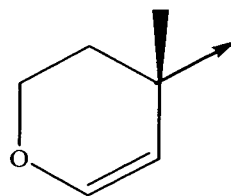
III



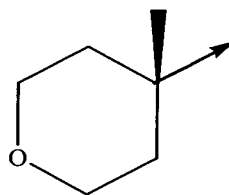
IV

wherein R_1 is



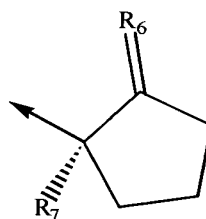


or



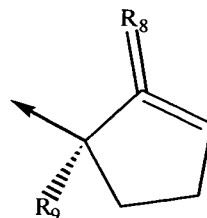
5

R_2 is



wherein R_6 is O or S and R_7 is H, OH, or halogen, or

10



wherein R_8 is H, OH, or halogen, and R_9 is H, OH, or halogen, and

R_3 is OH, SH, or NH_2 , R_3' is O, S, or NH, R_4 is O, S, NH, or CH_2 , R_5 is N or CH_2 ,

15 and R_5' is SO or CH_2 , under conditions effective to treat an inflammatory or allergic condition.

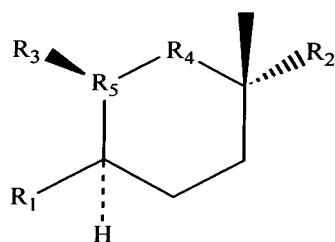
35. The method according to claim 34, wherein the 11β -hydroxysteroid dehydrogenase is isoform I.

36. The method according to claim 34, wherein the 11β -hydroxysteroid dehydrogenase is isoform II.

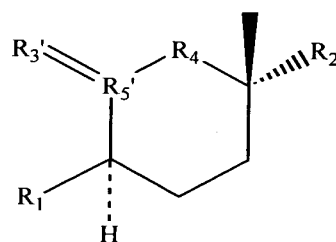
37. The method according to claim 34, wherein the administering is carried out topically and/or systemically.

38. The method according to claim 34, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

39. A method of treating cancer in a living system comprising: administering to the living system an inhibitor of cortisol-to-cortisone conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula III or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula IV or derivatives thereof as follows:

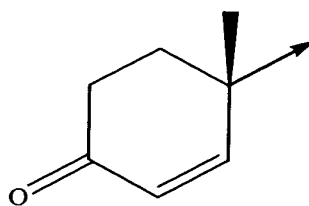


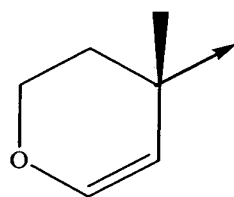
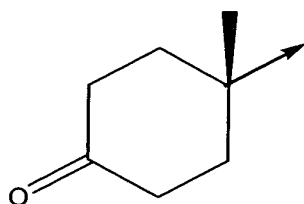
III



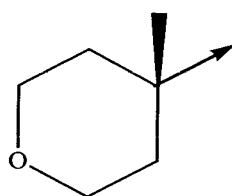
IV

wherein R_1 is

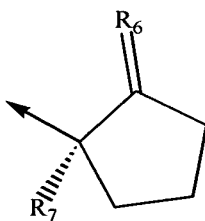




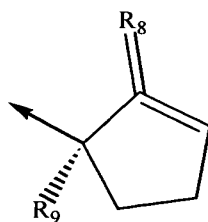
5 or



R_2 is



10 wherein R_6 is O or S and R_7 is H, OH, or halogen, or



wherein R_8 is H, OH, or halogen, and R_9 is H, OH, or halogen, and R_3 is OH, SH, or NH_2 , R_3' is O, S, or NH, R_4 is O, S, NH, or CH_2 , R_5 is N or CH_2 , and R_5' is SO or CH_2 , under conditions effective to treat cancer.

5

40. The method according to claim 39, wherein the 11β -hydroxysteroid dehydrogenase is isoform I.

41. The method according to claim 39, wherein the 11β -hydroxysteroid dehydrogenase is isoform II.

10

42. The method according to claim 39, wherein the administering is carried out topically and/or systemically.

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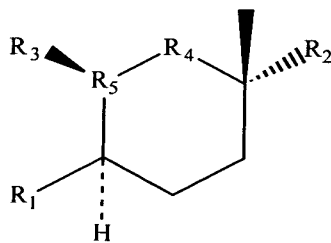
43. The method according to claim 39, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

44. A method of treating obesity, diabetes mellitus, or a metabolic syndrome involving 11β -hydroxysteroid dehydrogenase in a living system comprising:

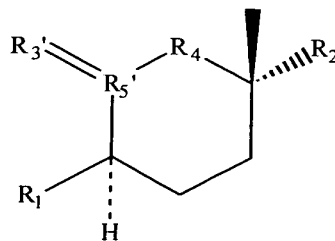
20

administering to the living system an inhibitor of cortisol-to-cortisone conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula III or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula IV or derivatives thereof as follows:

25

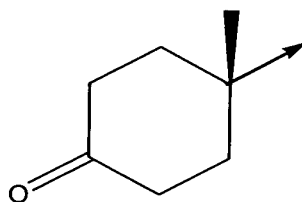
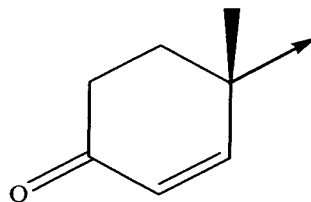


III

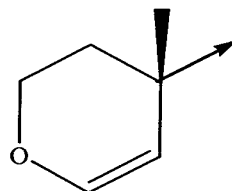


IV

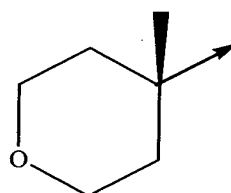
wherein R_1 is



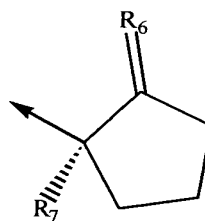
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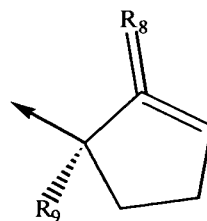
or



10 R_2 is



wherein R_6 is O or S and R_7 is H, OH, or halogen, or



wherein R₈ is H, OH, or halogen, and R₉ is H, OH, or halogen, and
R₃ is OH, SH, or NH₂, R₃' is O, S, or NH, R₄ is O, S, NH, or CH₂, R₅ is N or CH₂,
5 and R₅' is SO or CH₂, under conditions effective to treat obesity, diabetes
mellitus, or a metabolic syndrome involving 11 β -hydroxysteroid dehydrogenase.

45. The method according to claim 44, wherein the 11 β -
hydroxysteroid dehydrogenase is isoform I.

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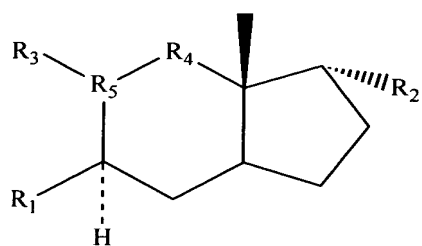
46. The method according to claim 44, wherein the 11 β -
hydroxysteroid dehydrogenase is isoform II.

47. The method according to claim 44, wherein the
15 administering is carried out topically and/or systemically.

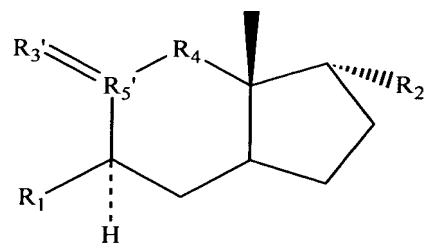
48. The method according to claim 44, wherein the inhibitor is
administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

20 49. A method of inhibiting 11 β -hydroxysteroid dehydrogenase
in a living system comprising:

administering to the living system an effective amount of an
inhibitor of cortisol-to-cortisone conversion, as mediated by 11 β -hydroxysteroid
dehydrogenase, of formula V or an inhibitor of cortisone-to-cortisol conversion, as
25 mediated by 11 β -hydroxysteroid dehydrogenase, of formula VI or derivatives
thereof as follows:

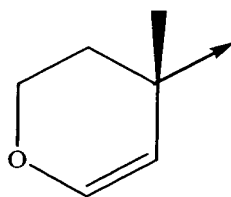
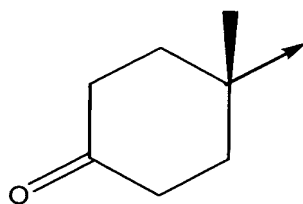
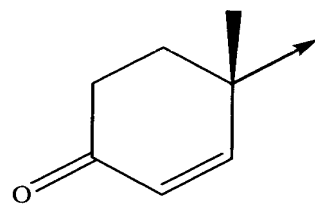


V

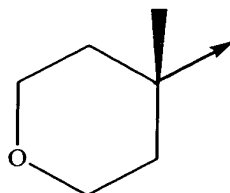


VI

wherein R₁ is



or



R_2 is H, OH, or halogen, R_3 is OH, SH, or NH_2 , R_3' is O, S, or NH, R_4 is O, S, NH, or CH_2 , R_5 is N or CH_2 , and R_5' is SO or CH_2 .

5

50. The method according to claim 49, wherein the 11β -hydroxysteroid dehydrogenase is isoform I.

51. The method according to claim 49, wherein the 11β -hydroxysteroid dehydrogenase is isoform II.

10

52. The method according to claim 49, wherein the administering is carried out topically and/or systemically.

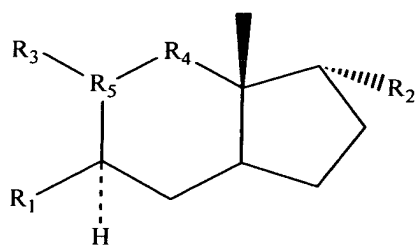
53. The method according to claim 49, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

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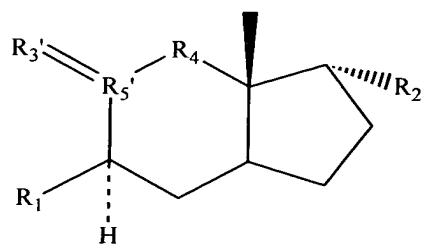
54. A method of treating an inflammatory or allergic condition in a living system comprising:

administering to the living system an inhibitor of cortisol-to-cortisone conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula V or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula VI or derivatives thereof as follows:

20



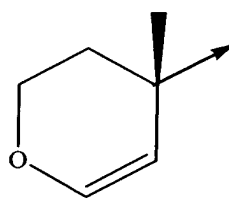
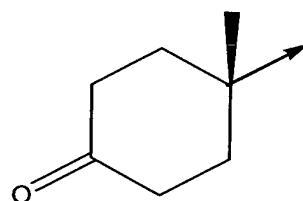
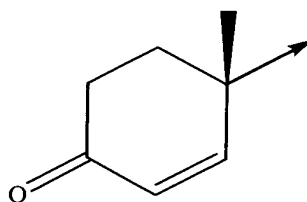
V



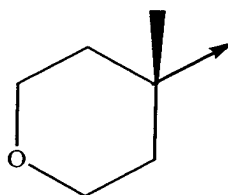
VI

wherein R₁ is

5



10 or



R_2 is H, OH, or halogen, R_3 is OH, SH, or NH_2 , R_3' is O, S, or NH, R_4 is O, S, NH, or CH_2 , R_5 is N or CH_2 , and R_5' is SO or CH_2 , under conditions effective to treat an inflammatory or allergic condition.

5 55. The method according to claim 54, wherein the 11β -hydroxysteroid dehydrogenase is isoform I.

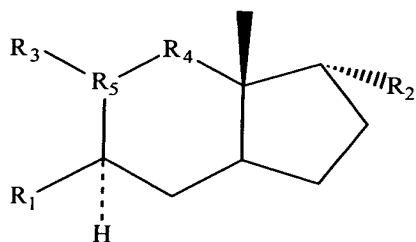
 56. The method according to claim 54, wherein the 11β -hydroxysteroid dehydrogenase is isoform II.

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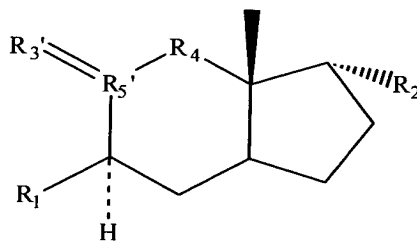
 57. The method according to claim 54, wherein the administering is carried out topically and/or systemically.

 58. The method according to claim 54, wherein the inhibitor is
15 administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

 59. A method of treating cancer in a living system comprising:
 administering to the living system an inhibitor of cortisol-to-cortisone conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of
20 formula V or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula VI or derivatives thereof as follows:



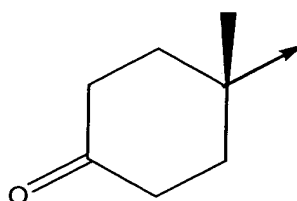
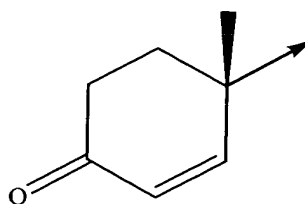
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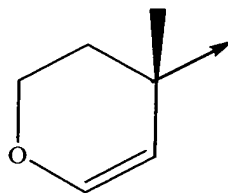
VI

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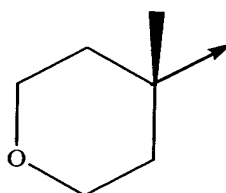
wherein R_1 is



5



or



10 R_2 is H, OH, or halogen, R_3 is OH, SH, or NH_2 , R_3' is O, S, or NH, R_4 is O, S, NH, or CH_2 , R_5 is N or CH_2 , and R_5' is SO or CH_2 , under conditions effective to treat cancer.

15 60. The method according to claim 59, wherein the 11β -hydroxysteroid dehydrogenase is isoform I.

61. The method according to claim 59, wherein the 11β -hydroxysteroid dehydrogenase is isoform II.

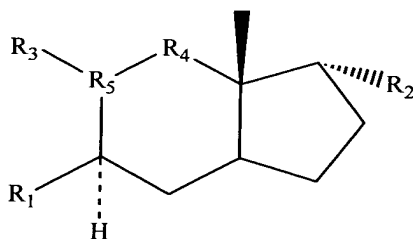
62. The method according to claim 59, wherein the administering is carried out topically and/or systemically.

5 63. The method according to claim 59, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

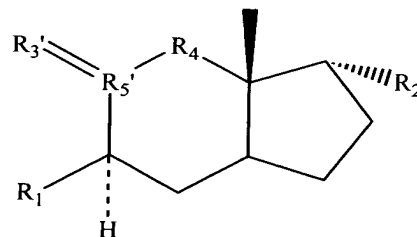
64. A method of treating obesity, diabetes mellitus, or a metabolic syndrome involving 11β -hydroxysteroid dehydrogenase in a living system comprising:

10 administering to the living system an inhibitor of cortisol-to-cortisone conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula V or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula VI or derivatives thereof as follows:

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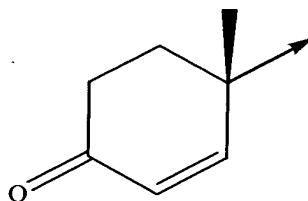


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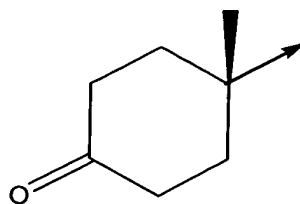


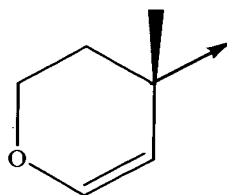
VI

wherein R_1 is

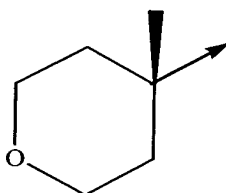


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or



5

R_2 is H, OH, or halogen, R_3 is OH, SH, or NH_2 , R_3' is O, S, or NH, R_4 is O, S, NH, or CH_2 , R_5 is N or CH_2 , and R_5' is SO or CH_2 , under conditions effective to
10 treat obesity, diabetes mellitus, or a metabolic syndrome involving 11β -hydroxysteroid dehydrogenase.

65. The method according to claim 64, wherein the 11β -hydroxysteroid dehydrogenase is isoform I.

15

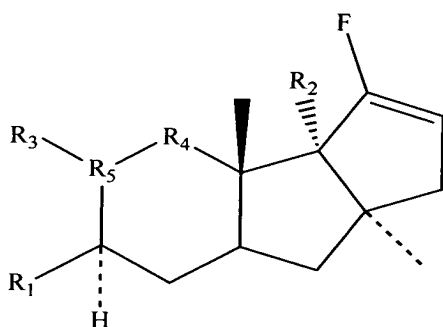
66. The method according to claim 64, wherein the 11β -hydroxysteroid dehydrogenase is isoform II.

67. The method according to claim 64, wherein the
20 administering is carried out topically and/or systemically.

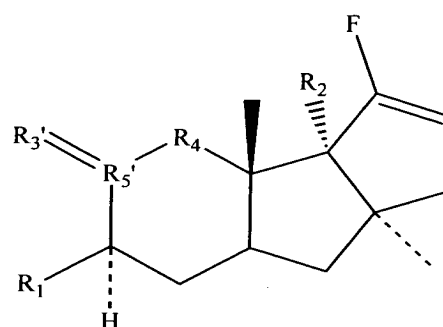
68. The method according to claim 64, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

25 69. A method of inhibiting 11β -hydroxysteroid dehydrogenase in a living system comprising:

administering to the living system an effective amount of an inhibitor of cortisol-to-cortisone conversion, as mediated by 11 β -hydroxysteroid dehydrogenase, of formula VII or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11 β -hydroxysteroid dehydrogenase, of formula VIII or derivatives thereof as follows:

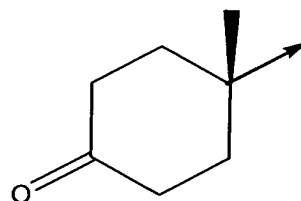
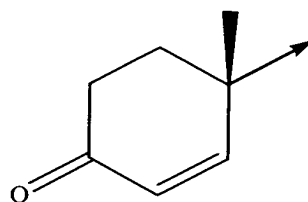


VII

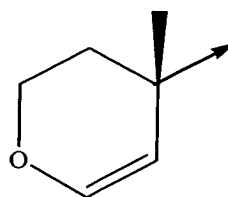


VIII

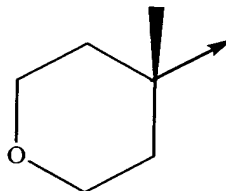
10 wherein R₁ is



15



or



5 R₂ is H, OH, or halogen, R₃ is OH, SH, or NH₂, R₃' is O, S, or NH, R₄ is O, S, NH, or CH₂, R₅ is N or CH₂, and R₅' is SO or CH₂.

70. The method according to claim 69, wherein the 11 β -hydroxysteroid dehydrogenase is isoform I.

10 71. The method according to claim 69, wherein the 11 β -hydroxysteroid dehydrogenase is isoform II.

72. The method according to claim 69, wherein the administering is carried out topically and/or systemically.

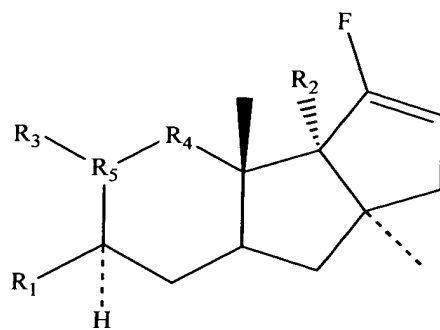
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73. The method according to claim 69, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

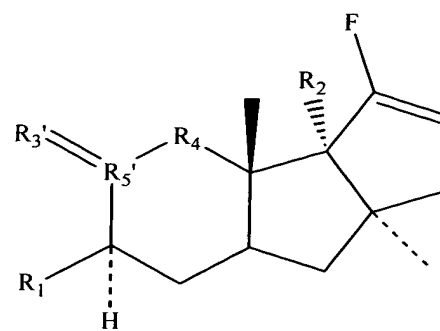
20 74. A method of treating an inflammatory or allergic condition in a living system comprising:

administering to the living system an inhibitor of cortisol-to-cortisone conversion, as mediated by 11 β -hydroxysteroid dehydrogenase, of formula VII or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11 β -hydroxysteroid dehydrogenase, of formula VIII or derivatives thereof as follows:

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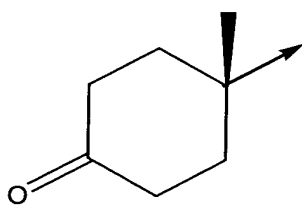
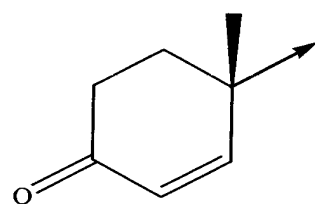


VII

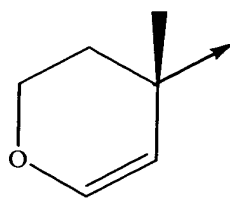


VIII

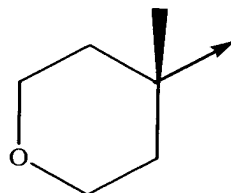
5 wherein R_1 is



10



or



R_2 is H, OH, or halogen, R_3 is OH, SH, or NH_2 , R_3' is O, S, or NH, R_4 is O, S, NH, or CH_2 , R_5 is N or CH_2 , and R_5' is SO or CH_2 , under conditions effective to treat an inflammatory or allergic condition.

5

75. The method according to claim 74, wherein the 11β -hydroxysteroid dehydrogenase is isoform I.

76. The method according to claim 74, wherein the 11β -hydroxysteroid dehydrogenase is isoform II.

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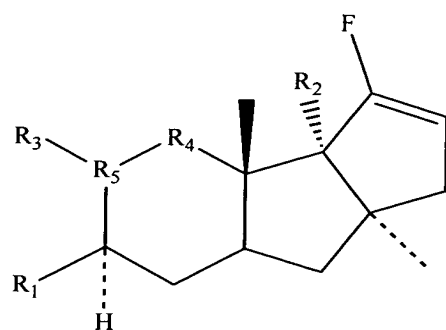
77. The method according to claim 74, wherein the administering is carried out topically and/or systemically.

15

78. The method according to claim 74, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

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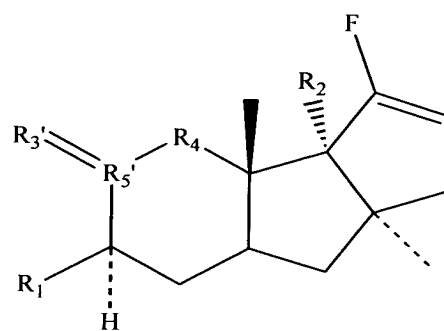
79. A method of treating cancer in a living system comprising: administering to the living system an inhibitor of cortisol-to-cortisone conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula VII or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula VIII or derivatives thereof as follows:



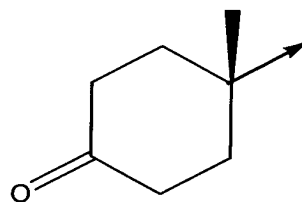
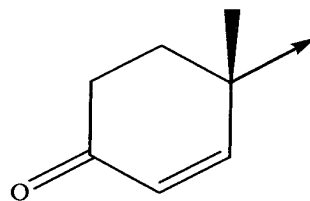
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VII

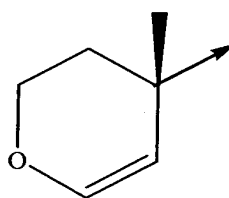
wherein R₁ is



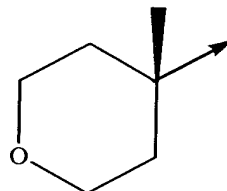
VIII



10



or



R_2 is H, OH, or halogen, R_3 is OH, SH, or NH_2 , R_3' is O, S, or NH, R_4 is O, S, NH, or CH_2 , R_5 is N or CH_2 , and R_5' is SO or CH_2 , under conditions effective to treat cancer.

5

80. The method according to claim 79, wherein the 11β -hydroxysteroid dehydrogenase is isoform I.

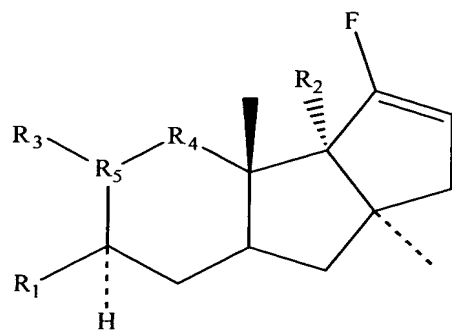
81. The method according to claim 79, wherein the 11β -
10 hydroxysteroid dehydrogenase is isoform II.

82. The method according to claim 79, wherein the administering is carried out topically and/or systemically.

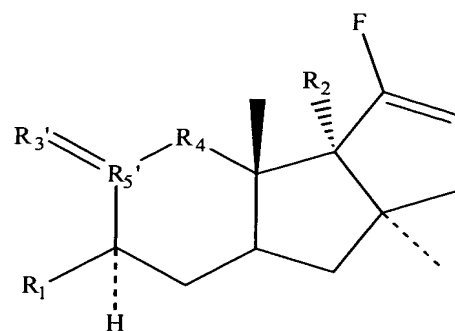
15 83. The method according to claim 79, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.

84. A method of treating obesity, diabetes mellitus, or a metabolic syndrome involving 11β -hydroxysteroid dehydrogenase in a living
20 system comprising:

administering to the living system an inhibitor of cortisol-to-cortisone conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula VII or an inhibitor of cortisone-to-cortisol conversion, as mediated by 11β -hydroxysteroid dehydrogenase, of formula VIII or derivatives thereof as
25 follows:

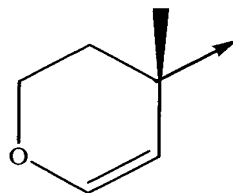
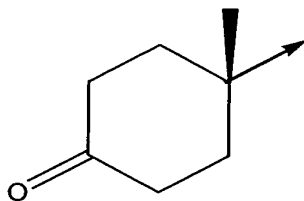
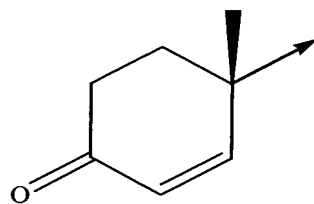


VII



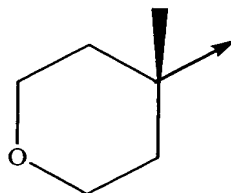
VIII

wherein R₁ is



5

or



10

R₂ is H, OH, or halogen, R₃ is OH, SH, or NH₂, R₃' is O, S, or NH, R₄ is O, S, NH, or CH₂, R₅ is N or CH₂, and R₅' is SO or CH₂, under conditions effective to treat obesity, diabetes mellitus, or a metabolic syndrome involving 11 β -hydroxysteroid dehydrogenase.

5

85. The method according to claim 84, wherein the 11 β -hydroxysteroid dehydrogenase is isoform I.

86. The method according to claim 84, wherein the 11 β -
10 hydroxysteroid dehydrogenase is isoform II.

87. The method according to claim 84, wherein the administering is carried out topically and/or systemically.

15 88. The method according to claim 84, wherein the inhibitor is administered with pharmaceutically acceptable carrier, excipient, or stabilizer.